Here's more details for how i got my very different floor values. No data points are excluded in my approach. They are all retained. The less than 10 amp data is used to develop a scaling factor. That factor is then used to scale the greater than 10 amps hot short data to develop a value for spurious behavior.

Developing a floor value based on having to exclude long duration hot short counts is unnecessarily conservative given that we have the data to use a scaling approach that uses all the data points.

Sent from my Verizon Wireless 4G LTE DROID

Dave,

The AC data are all spurious operations so i pooled then all together. For DC, i get three data sets. One for hot shorts with fuses less than 10 amps, another for hot shorts with fuses greater than 10 amps. But i only have spurious operation data for DC with fuses less than 10 amps. So i calculated a separate exponential term for each of those there data sets. Then i took their ratio to calculate an exponential rate term for spurious operations on DC with fuses greater than 10 amps. All of the data was retained including the long duration events. Those long duration events were hot shorts and caused the spurious operation events to scale upwards. This approach allows those long duration events to be retained instead of being deleted and inflating the floor value.

Sent from my Verizon Wireless 4G LTE DROID

"Miskiewicz, David N." <dxm@epm-inc.com> wrote:

[redacted]

You are correct that your floor is out of sync with the others. I am not sure that trying to fit the pooled data. I thought the idea of the floor was mostly to account for a bimodal behavior because some of the shorts never cleared before the fire as terminated. Admittedly there was no AC data for this behavior, so your fit might be justified in that case. There were however some DC shorts that never cleared, which was where the 0.03 number came from. I am nor sure that you can sell 3e-3. Can you explain how you addressed the events that did not clear?

dave

Sent from Windows Mail

To All,

After ‘sleeping’ on this overnight, it occurred to me that a reasonable question you might have is why I chose a simple exponential function. The reason is that the timeframe of interest in application space lies to the right (longer times) of the all of the test data points. As you likely discerned from my discussion, I was using the assumed exponential distribution to predict a behavior outside the range of the test results. That being the case, I was concerned that a typical statistical best-fit approach would focus on fitting the test points rather than necessarily being a best fit for extremities of the curve. I did a quick brute force attempt at Weibull and found that it would have resulted in lower values. So given this 'test', I'm good with my floor values and actually feel better about the relatively narrow gap to the upper quartile value I provided.

To All,

The following is my input of the requested information from the Proponents. My proposed floor values are notably lower than the values previously discussed so a brief description of the approach I used is also provided.

S Factor – 1.5
AC Duration Floor – 2.1E-4 (3E-4/1E-4 Quartiles) DC Duration Floor – 2.9E-3 (6E-3/1E-3 Quartiles)

I did not like the idea of providing a fully judgment based recommendation of a floor value. Instead, I wanted to have some numerical basis for that value. This was achieved by doing some 'math' to establish an anchor point around which I could then provide judgment. I also didn't really like the idea of setting the floor value for DC based on 'excluded' datapoints which my 'anchor point' approach avoided. Instead, using the pooled data as a starting point, I did some other groupings as described below. In all cases, datapoints that were characterized as being a flame exposure case were excluded.

The AC Duration floor was calculated as follows - what I essentially did construct an exponential model (effectively the same approach that was used for the suppression curve) to extrapolate from the test data to form a numerical basis for my floor value. I wanted to do that primarily because the AC test data all resulted in very short durations and setting a floor value based on some statistical model would likely set an over-conservative high floor value. I pooled the AC duration data but excluded the AC Ungrounded TP data as it would have had a skewing effect on my approach (would drive the result to be still lower). The pooled data was then simply combined to obtain a 'rate' term of an assumed exponential behavior for times beyond those from the test results. This was then used to extrapolate the test data and 'calculate' a value at time point 50% beyond the last test point in the data. This yielded a value of 2.1E-4. The quartiles are purely judgment based.

The approach to obtain the DC floor was quite a bit more convoluted. In this case, we have Hot Short data for less than 10 amp fuses and greater than 10 amp fuses. We only have Spurious data for less than 10 amps. For this, the test data was pooled into three groups – HS less than 10 A, HS greater than 10 A, and SO less than 10 A. The same approach as above was used to calculate three 'rate' terms. A ratio of that terms for the less than 10 A case was combined with the HS for the greater than 10 A case to calculate an assumed rate term for SO greater than 10 A. That calculated rate term was then used to calculate the 'tail' of the exponential curve to a point 50% beyond the last test data point. From a practical perspective, the scaling of data from HS tests that yielded durations of less than 20 minutes with SO tests that yielded durations of less than 2 minutes is problematic - but I could see no other way to establish an anchor value for ‘calibrating’ my judgment. This yielded a value of 2.9E-3. The quartiles are purely judgment based.

My expectation is that he previously agreed curve would be used to ‘plot’ a distribution until it intersected with the floor values. The same would be done for the uncertainty bands.